

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/07373

A. CLASSIFICATION OF SUBJECT MATTER
 IPC: C07D 473/34(2006.01),487/04(2006.01);A61K 31/519(2006.01),31/52(2006.01)

USPC: 544/262,277,280;514/263.4,262.1,265.1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 U.S. : 544/262,277,280; 514/263.4,262.1,265.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 CAS ONLINE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|---|
| X --- | KELLEY, J. L. et al, Antirhinovirus activity of 6-anilino-9-benzyl-2-chloro-9H-purines, Journal of Medicinal Chemistry, 1990, Vol. 33, No. 5, pages 1360-3. Compound 16, Table I, page 1361 fits the formula of claim 1 with Y = W = N, A1-A4 = B1=B5 = X = CH, R2 = CN, R3 = Cl, and n = 1. | 1-3, 16-18, 29-31, 41 ----- 4, 19, 32, 47, 49-58, 60, 62-64, 66-68, 70-76, 78, 80, 82 |
| X | GHORAB, M. M. et al, Antimicrobial activity of amino acid, imidazole, and sulfonamide derivatives of pyrazolo[3,4-d]pyrimidine, Heteroatom Chemistry, 2004, Vol. 15, No. 1, pages 57-62. Compound 12, scheme 3, page 59 fits the formula of claim 1 with X = Y = N, A1-A4 = B1=B5 = W = CH, R2 = SO2NH2, R3 = H, and n = 0. | 1, 2, 4, 16, 17, 19, 29, 30, 32, 64 |
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|-------------------------------------|---|--------------------------|--|
| <input checked="" type="checkbox"/> | Further documents are listed in the continuation of Box C. | <input type="checkbox"/> | See patent family annex. |
| • | Special categories of cited documents: | "T" | later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention |
| "A" | document defining the general state of the art which is not considered to be of particular relevance | "X" | document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone |
| "E" | earlier application or patent published on or after the international filing date | "Y" | document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art |
| "L" | document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) | "&" | document member of the same patent family |
| "O" | document referring to an oral disclosure, use, exhibition or other means | | |
| "P" | document published prior to the international filing date but later than the priority date claimed | | |

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| Date of the actual completion of the international search <u>27 March 2006 (27.03.2006)</u> | Date of mailing of the international search report <u>15 JUN 2006</u> |
| Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201 | Authorized officer <i>J. Roberts for</i> Thomas C. McKenzie, Ph.D. Telephone No. (571) 272-1600 |

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. - Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: parts of 1, 16, 29, 41, 47, 49, 60, 62, 66, 70, 78, 80 and 82
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
Please See Continuation Sheet

3. Claims Nos.: 5-15, 20-28, 33-40, 42-46, 48, 59, 61, 65, 69, 77, 79, 81 and 83-92
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of any additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

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Continuation of Box II Reason 2:

In these claims, the numerous variables and their voluminous, complex meanings and their seemingly endless permutations, makes it virtually impossible to determine the full scope and complete meaning of the claimed subject matter. It is impossible to carry out a meaningful search on same. These claims so lack support in the specification that only compounds with Y = N and A1-A4 = B1-B5 = C were searched

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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|---|
| X | WO 03/099820 A1 (DAS et al.) 4 December 2003 (04.12.2003). Compound 60, page 57 is a ring position isomer of the formula of claim 1 with X = Y = N, A1-A3 = B1=B5 = W = CH, A4 = C(CH ₃), R ₂ = CONHCH ₃ , R ₃ = H, and n = 1. See also compounds 15, 17, 19, 28, 34, 40, and 42. Claims 17 and 18 of the reference teach the treatment of inflammatory diseases. | 1, 2, 4, 16, 17, 19, 29, 30, 32, 47, 49-58, 60, 62-64, 66, and 67 |
| T | WO 2005/047288 A1 (TIBERGHIEN et al.) 26 May 2005 (26.05.2005), Example 60, page 43. | 1, 2, 4, 16, 17, 19, 29, 30, and 32 |
| P,X | WO 2005/016528 A2 (CHENG et al.) 24 February 2005 (24.01.2005). Compound 143, Table I, page 57 fits the formula of claim 1 with Y = W = N, A1-A4 = B1=B5 = X = CH, R ₂ = CONHPr, R ₃ = Rx-L-M-Ry, Rx = a bond, L = NR ₂ , R ₂ = H, M = CH ₂ -CH ₂ , Ry = 4-imidazolyl, and n = p = 0. Page 12 of the reference teaches the treatment of cancer and atherosclerosis. | 1-3, 16-18, 29-31, 41, 47, 49-58, 60, and 64 |